

Listing of Claims

1-6 (Canceled)

7. (Previously Presented) A method for measuring the bit error ratio of a transmission system, comprising:

setting and initializing a plurality of buffers, which are capable of accumulating a number of bit errors in a signal of the transmission system at a prescribed interval of time T;

storing the number of bit errors generated during the period of time T in the plurality of buffers;

determining whether an Excessive Bit Error Ratio (E-BER) alarm has been generated;

selecting and monitoring a subset of the plurality of buffers from a current buffer to at least one of a first and second prescribed buffer;

determining whether the E-BER alarm should be generated based on an average number of bit errors in the monitored subset of buffers from the current buffer back to the first prescribed buffer after an elapse of the period of time T, if the E-BER alarm has not been previously generated; and

determining whether the E-BER alarm should be cleared based on an average number of bit errors in the monitored subset of buffers from the current buffer back to the

second prescribed buffer after an elapse of the period of time T , if the E-BER alarm has previously been generated.

8. (Previously Presented) A method for measuring the bit error ratio of a transmission system, comprising:

setting and initializing a plurality of buffers, which accumulate a number of bit errors in a signal of the transmission system at a fixed interval of time T ;

storing the number of bit errors generated during the period of time T in the plurality of buffers;

determining whether an Excessive Bit Error Ratio (E-BER) alarm has been generated;

monitoring a subset of the plurality of buffers from a current buffer to one of a first and second prescribed buffer;

determining whether the E-BER alarm should be generated based on an average number of bit errors in the monitored subset of buffers from the current buffer back to the first prescribed buffer after an elapse of the period of time T , if the E-BER alarm has not been previously generated; and

determining whether the E-BER alarm should be cleared based on an average number of bit errors in the monitored subset of buffers from the current buffer back to the

second prescribed buffer after an elapse of the period of time T , if the E-BER alarm has previously been generated, wherein the E-BER alarm generating step comprises:

monitoring g -number of buffers from the current buffer including the current buffer using a sliding window after an elapse of the period of time T , when the E-BER alarm is not generated as the result of determination, wherein an E-BER error generation duration time is gT , and the number of $10E-3$ BER error generated at a period of time T is N_3 ;

summing the number of bit errors of the scoped sliding window buffers and calculating the average number of bit errors;

comparing the calculated average number of bit errors of the sliding window buffers with N_3 ; and

performing one of setting the E-BER alarm generation flag, if it is determined that the average number of bit errors is not less than N_3 as the result of the comparison and not setting the E-BER alarm while reforming the sliding window buffers by moving the sliding window as far as the period of time T , if it is determined the average number of bit errors is less than N_3 as the result of the comparison.

9. (Previously Presented) A method for measuring the bit error ratio of a transmission system, comprising:

setting and initializing a plurality of buffers, which accumulates a number of bit errors in a signal of the transmission system at a prescribed interval of time T ;

storing the number of bit errors generated during the period of time T in the plurality of buffers;

determining whether an Excessive Bit Error Ratio (E-BER) alarm has been generated;

monitoring a subset of the plurality of buffers from a current buffer to one of a first and second prescribed buffer;

determining whether the E-BER alarm should be generated based on an average number of bit errors in the monitored subset of buffers from the current buffer back to the first prescribed buffer after an elapse of the period of time T , if the E-BER alarm has not been previously generated; and

determining whether the E-BER alarm should be cleared based on an average number of bit errors in the monitored subset of buffers from the current buffer back to the second prescribed buffer after an elapse of the period of time T , if the E-BER alarm has previously been generated, wherein the E-BER alarm clearing step comprises:

monitoring r -number of buffers from the current buffer including the current buffer using a sliding window after an elapse of the period of time T , if an E-BER alarm is generated as the result of determination, an E-BER error repair duration time is rT , and the number of $10E-4$ BER error generated at a period of time T is N_4 ;

summing the number of bit errors of the scoped sliding window buffers and calculating the average number of bit errors;

comparing the calculated average number of bit errors of the sliding window buffers with N_4 ;

performing one of setting the E-BER alarm clearing flag, when the average number of bit errors is not more than N_4 as the result of the comparison and maintaining the E-BER alarm generation state, if the average number of bit errors is more than N_4 as the result of the comparison.

10-16. (Canceled)

17. (Previously Presented) A method for measuring the bit error ratio of a transmission system, comprising:

setting an Excessive Bit Error Ratio (E-BER) error generation duration time for judging whether or not an excessive error is instantaneously generated, and setting an E-BER error repairing duration time for judging whether or not the E-BER alarm is cleared when an error is intermittently generated after E-BER alarm is generated;

calculating an average number of bit errors stored in a first subset of a sliding window buffers corresponding to the E-BER error generation duration time, judging whether an error is instantaneously generated according to an average number of bit errors, and generating an E-BER alarm if an excessive error is instantaneously generated; and

calculating an average number of bit errors stored in a second subset of the sliding window buffers corresponding to the E-BER error repairing duration time after the generation of the E-BER alarm, judging whether or not an error is intermittently generated according to the average number of bit errors, and clearing the E-BER alarm when the error is repaired.

18. (Previously Presented) A method for measuring the bit error ratio of a transmission system, comprising:

setting an Excessive Bit Error Ratio (E-BER) error generation duration time for judging whether or not an excessive error is instantaneously generated, setting an E-BER error repairing duration time for judging whether or not the E-BER alarm is cleared when an error is intermittently generated after E-BER alarm is generated;

calculating an average number of bit errors of a sliding window buffer corresponding to the E-BER error generation duration time, judging whether an error is instantaneously generated according to an average number of bit errors, and generating an E-BER alarm if an excessive error is instantaneously generated; and

calculating the average number of bit errors of the sliding window buffer corresponding to the E-BER error repairing duration time after the generation of the E-BER alarm, judging whether or not an error is intermittently generated according to the average number of bit errors, and clearing the E-BER alarm when the error is repaired, wherein the E-BER alarm generation step comprises:

setting n number of buffers capable of accumulating the number of bit errors in a signal of the transmission system and storing the number of bit errors generated at the period of time T in the corresponding buffer;

comparing whether the total number of bit errors of the sliding window buffers scoped from and including the current buffer back to a g -th buffer is more than the product of g and N_3 when the period of time T is elapsed and an E-BER error generation duration time is gT , wherein the number of sliding window buffers is g , and the number of $10E-3$ BER errors generated at a predetermined period of time T ;

determining that the total number of bit errors exceeds $10E-3$ and setting an E-BER alarm generation flag for generating an E-BER alarm, if the total number of bit errors of g number of sliding window buffers is more than the product of g and N_3 as the result of comparison; and

determining that the total number of bit errors does not reach $10E-3$ and forming a sliding window of g size by moving the sliding window as far as the period of time T , if the total number of bit errors is less than the product of g and N_3 as the result of comparison.

19. (Previously Presented) A method for measuring the bit error ratio of a transmission system, comprising:

setting an Excessive Bit Error Ratio (E-BER) error generation duration time for judging whether or not an excessive error is instantaneously generated, setting an E-BER error

repairing duration time for judging whether or not the E-BER alarm is cleared when an error is intermittently generated after E-BER alarm is generated;

calculating an average number of bit errors of a sliding window buffer corresponding to the E-BER error generation duration time, judging whether an error is instantaneously generated according to an average number of bit errors, and generating an E-BER alarm if an excessive error is instantaneously generated; and

calculating the average number of bit errors of the sliding window buffer corresponding to the E-BER error repairing duration time after the generation of the E-BER alarm, judging whether or not an error is intermittently generated according to the average number of bit errors, and clearing the E-BER alarm when the error is repaired, wherein the E-BER alarm clearing step comprises:

comparing whether the total number of bit errors of the sliding window buffers scoped from and including the current buffer back to r -th buffer is less than the product of 4 and N_4 when the period of time T is elapsed, if an E-BER alarm is generated, an E-BER error repair duration time is rT , the number of sliding window buffers is r , and the number of $10E-4$ BER errors generated at a certain period of time T is N_4 ;

determining that the total number of bit errors is less than $10E-4$ and resetting an E-BER alarm generation flag for clearing the E-BER alarm, if the total number of bit errors of r number of sliding window buffers is less than the product of 4 and N_4 as the result of comparison; and

determining that the total number of bit errors exceeds $10E-4$ and maintaining the E-BER alarm state, if the total number of bit errors of r number of sliding window buffers is not less than the product of 4 and N_4 as the result of comparison.

20-23. (Canceled)

24. (Previously Presented) The method of claim 7, further comprising: changing the portion of the buffers to be monitored to a desired number of buffers.

25. (Previously Presented) The method of claim 17, wherein the first subset and the second subset have different numbers of buffers.

26. (Previously Presented) The method of claim 17, wherein the error generation duration time and the error repairing duration time are based on a number of buffers in the first subset and the second subset respectively.

27. (Previously Presented) The method of claim 26, wherein the error generation duration time is based on the number of the buffers in the first subset multiplied by a time period T , during which the bit errors in all sliding windows are detected.

28. (Previously Presented) The method of claim 26, wherein the error repairing duration time is based on the number of the buffers in the second subset multiplied by a time period T , during with the bit errors in all sliding windows are detected.